

Patent demand

1.

A device which can be retrofitted or prefabricated for a draining-well (10 or 22), provided with one or several inlets (2) and one or several pumps (23), connected to an outlet pipe (33) for waste and storm water (6), which prevents sedimentation and blockage, and which maintains the proportions between outgoing waste water and storm water (6) within set limits, **characterised by** having a swirl chamber (1) with air injector (3), designed such that it reduces the damming height above an overflow edge (4) of the flow of waste and storm water (6), and that at the same time it is able to prevent floating objects and surface sludge from flowing over the overflow edge (4), using a sludge shield (19), and that the device has a movable barrier (15) which prevents reverse flow from the recipient watercourse, when its level is higher than normal, from entering outlet pipe (34) and coming back up through outlet pipe (2) and on into the connected waste water and storm water system and that the outgoing water flow speed through outlet pipe (7) is increased by installation of a swirl separator (25) which forms vortices, which means that the water flow rate increases such that the water is more able to retain sludge particles and that these can be flushed out through outlet (33) together with the outgoing water.

2.

A device as in patent demand 1, **characterised by** being provided with a rear section (26) provided with a fixing device, which is inserted into an inlet (2) for incoming water, where the edges of the rear section (26) are provided with a seal (27) against the inside of the inlet (2).

3.

A device as in patent demand 1, **characterised by** being provided with a seal (27) which is mounted on a rear section (26), which is flat or bent so as to fit against the wall of the draining-well (10 or 22) and thus covers the inlet (2) by being mounted directly on or over the inlet (2) for incoming water.

4.

A device as in patent demand 3, **characterised by** having a swirl chamber (1) provided with extended sides (12) and extended base (13), which offers a lower overflow height and less risk of surface sludge particles passing the overflow edge (4).

5.

A device as in patent demand 4, **characterised by** an extra sludge shield (19) higher than the sides (12) that does not extend all the way down to the base of the swirl chamber (13), which permits water to flow up under it through the space (20) and then over the edge to the extended sides (12) of the swirl chamber (1), which means that surface sludge remains inside the sludge shield (19) and is transported to the vortex forming outlet (7) of the swirl chamber, where it is sucked down and is taken along with the outflowing waste and storm water (6) through the outlet pipe (33).

6.

A device as in patent demand 5, **characterised by** a movable barrier (15) with buoyancy which is maintained lying on the surface of the water between the extended sides (12) of the swirl chamber (1) and that this barrier (15) has a coarse filter (32) fixed underneath it, and that the barrier (15) and the coarse filter (32) can move up and down inside the extended sides (12) of the swirl chamber (1) and where the coarse filter (32) extends below the surface of the water when the water level rises because the inflowing water rises all the way up to the top edge of the extended sides (12) of the swirl chamber (1), at which point when such volumes come in over the inlet (2) that they can not be swallowed by the outlet pipe (7) of the swirl chamber (1) and are forced through the coarse filter (32) and over the edges of the extended sides (12) of the swirl chamber (1), and then pass out through the outlet (34) to a recipient watercourse, whereas coarser sludge particles remain inside the coarse filter (32) and the extended sides (12) and are transported to the vortex forming outlet (7) of the swirl chamber (1), where they are sucked down and accompany the outflowing waste and storm water (6) through the outlet pipe (33) to a treatment plant etc.

7.

A device as in patent demand 5 and 6, **characterised by** having a coarse filter (32) installed in the space (20) between the extended sides (12) and the sludge shield (19).

8.

A device as in patent demand 5, 6 and 7, **characterised by** the height of the sludge shield (19) above the overflow edge (9) of the extended sides (12), so that when water flows are greater than the estimated nominal water flow (5), this larger amount of water then flows via space (35) over the top edge of the sludge shield (19) to the outlet (34).

9.

A device as in patent demand 1 to 8, **characterised by** that when the inlet pipe (2) of the device is connected to an upstream delaying and smoothing water reservoir, the rear section (26) has an opening (29) whose area is less than the area of the inlet pipe (2), which reduces the flow (5) during flow peaks via the filter (32) direct to the outlet (34).

10.

A device as in patent demand 1, **characterised by** the roof (8) of the swirl chamber (1) being removable for inspection or cleaning.